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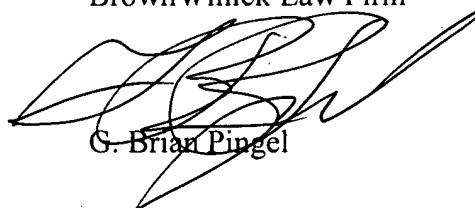
Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

Re: Appln. No.: 10/697,376
Filed: October 30, 2003
For: Improved Fluid Retaining Apparatus With Ball Valve

Enclosed please find an original and three copies of a Brief of Appellant in regards to the above matter for filing. Also enclosed is our check in the amount of \$250.00 for the filing fee.

Sincerely,

BrownWinick Law Firm



G. Brian Pingel

GBP:rkj
Enclosures



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Christopher E. Schafer

Appl. No.: 10/697,376

Filed: October 30, 2003

Invention: Improved Fluid Retaining
Apparatus with Ball Valve

Grp./A.U.: 3753

Examiner: Craig James Price

Appeal No:

Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

BRIEF OF APPELLANT

This is an appeal from the final rejection of the Examiner dated March 23, 2006, rejecting Claims 1-4 and 6-14, all of the claims in this case. This Brief is accompanied by the requisite fee set forth in 37 C.F.R. section 41.20(b)(2).

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REAL PARTY IN INTEREST

The instant application has been assigned to Improved Mobility Inc. The assignment is located at Real/Frame 014659/0293 (Assignment Record, Ex. A). Improved Mobility Inc. now operates under the fictitious name Evergreen Health, Inc., located at 1637 280th Street, Adair, IA 50002. (Iowa Secretary of State Business Record, Ex. B).

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF CLAIMS

The status of the claims as set out in the Claim Appendix is as follows:

claims 1-4 and 6-14 are rejected; and

claim 5 has been withdrawn.

STATUS OF AMENDMENTS

Applicant filed an amendment on May 26, 2006, in response to the Final Office Action dated March 23, 2006. The Examiner has acted upon the amendment, entered the amendment, and maintained a prior rejection of all claims. (Office Action, Ex. C, Aug. 9, 2006, at pg. 7, § 7). The May 26, 2006, amendment included a 37 CFR 1.132 declaration that was entered and considered by the Examiner. (Declaration of Christopher E. Schafer, hereinafter "Schafer Declaration", Ex. D). The Examiner considered Applicant's arguments submitted with the May 26, 2006, amendment, but determined the arguments moot in view of new ground(s) of rejection. (Office Action, Ex. C).

The claims as set out in the Appendix include the most recent amendments to the claims.

SUMMARY OF CLAIMED SUBJECT MATTER

Applicant's invention is directed to an apparatus (10) to aid in the drinking of fluids to a liquid delivery tube (20). (Application, pg. 1, lines 5-7). The invention employs an interior ball valve (12) (Application, pg. 7, lines 4-6, Fig. 2) and an upper portion (15) (Application, Fig. 1) that is shaped to be insertable into the liquid delivery tube (20) such as a drinking straw. (Application, pg. 7, lines 17-19, Fig. 3). The upper portion (15) of the apparatus tapers inwardly to allow easy insertion of the upper portion into the straw (20) (Application, pg. 7, Lines 21-23) and to restrict the flow of liquid. (Application, pg. 8, Lines 3-7). The flow restriction reduces the risk of liquid entering the lungs of a user. (Application, pg. 8, Lines 7-8). Through experimentation, the inventors have determined the optimal angle for a valve seat (24) to prevent sticking and leak back. (See Schafer Declaration, Ex. D). The claimed range is less than 20.76 degrees but greater than 14.76 degrees. (Application, pg. 9, Lines 6-11).

Claims 1-3, 7-10, and 12 claim an apparatus for retaining fluids in a liquid delivery tube (20) and requires a lower portion (11) having a ball valve (12) with a valve chamber (13) and an upper tubular portion (15) tapered to its terminus and having a tapered passageway (17). (Application, pg. 7, lines 4-11). Claim 1 requires the valve seat (24) to have sidewalls (28) that taper inwardly from the valve chamber (13). (Application, pg. 9, lines 5-6).

Claim 6 limits the tapering of the sidewalls (28) to an angle less than 20.76 degrees but greater than 14.76 degrees. (Application, pg. 9, Lines 6-11). Claim 11 limits the sidewall (28) tapering to an angle generally less than 21 degrees but greater than 15 degrees. (*Id.*). Claim 14 limits the sidewall (28) tapering to an angle less than 18

degrees but greater than 17 degrees. (*Id.*).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-3, , 9-10, and 12 are unpatentable under 35 U.S.C. 102(b) over Woodward (U.S. Patent No. 4,070,237).

Whether claim 7 is unpatentable under 35 U.S.C. 102(b) over Woodward (U.S. Patent No. 4,070,237).

Whether claim 8 is unpatentable under 35 U.S.C. 102(b) over Woodward (U.S. Patent No. 4,070,237).

Whether claims 6 and 11 are unpatentable under 35 U.S.C. 103(a) over Woodward.

Whether claim 14 is unpatentable under 35 U.S.C. 103(a) over Woodward.

Whether claim 13 is unpatentable under 35 U.S.C. 103(a) over Woodward in view of Wright (U.S. Patent No. 3,773,256).

ARGUMENT

A. Rejection under 35 U.S.C. 102(b) over U.S. Patent No. 4,070,237 ("Woodward").

i. Claims 1-3, 7,9-10, and 12

Woodward is directed to an automatic valve for controlling the vacuum in an enclosed container, specifically for suction boxes used on paper making machines. (Woodward, Col. 1, lines 7-10). Although Woodward explicitly describes the use of a bleed valve (7) with air suction boxes, the description of Woodward provides that the bleed valve (7) "can be used in any fluid system that may be controlled by a constant bleed valve." (*Id.*, col. 5, lines 39-44). Gravity acts on a ball (18) of Woodward to force the ball (18) into the valve seat. [*Id.*, col. 3, lines 47-50; col. 3, lines 33-35). Woodward discloses "the tapering of the conical valve seat 16 will be sufficient to prevent jamming of the ball in the seat and in any case will be cut approximately a 50 degree included angle", i.e. a 25 degree angle per side of the cross section. (*Id.*, col. 4, lines 15-18).

A cross section of the bleed valve (7) of Woodward is shown in Figure 2A of Woodward. Woodward provides a bleed valve (7) (*Id.*, col. 3, lines 21-22) having internally tapering sides (16) that form a conical valve seat. (*Id.*, col. 3, lines 38-40). The bleed valve (7) of Woodward is designed to connect to an elbow 12, i.e. a pipe. A top cap (13) on the bleed valve (7) of Woodward is internally threaded to engage the external threads of pipe (12). (*Id.*, col. 3, lines 33-35). A passageway (29) in the valve (7) of Woodward includes rods (19) that help guide the ball (18) in the passageway (29) (*Id.*, col. 3, lines 47-50), and a rod (24) or fin that stops the ball from closing the passageway (29). (*Id.*, col. 4, lines 33-42). The ball (18) "is substantially stationary in

operation" as it is supported by a steady stream of clean air. (*Id.*, col. 5, lines 28-30).

Applicant believes that Woodward does not anticipate the invention as claimed in claim 1 or claims 2, 3, 7-10, and 12. Claim 1 claims an apparatus for retaining fluid in a liquid delivery tube. Woodward discloses a bleed valve for bleeding a consistent amount of air. (Woodward, col. 5, lines 6-8). Woodward does not disclose whether its apparatus can retain fluid. Applicant's claim 1(b) requires the upper tubular portion have "an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube". Fig. 2 of the instant application meets the limitation of claim 1(b), and is copied below next to a copy of Fig. 2a of Woodward.

Fig. 2 Application

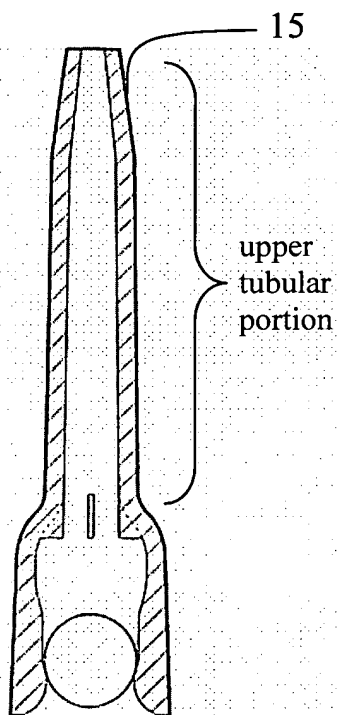
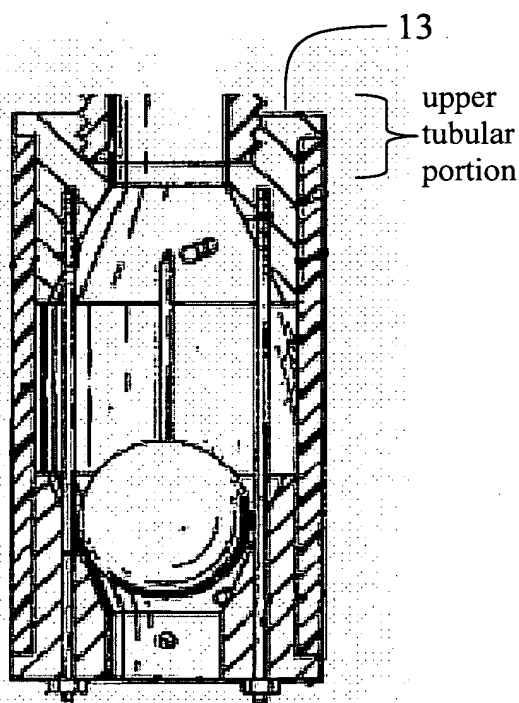


Fig. 2a Woodward



It is clear from the above figures that the upper tubular portion of Applicant's preferred embodiment is tapered to its terminus to facilitate insertion into a liquid delivery tube consistent with Applicant's claim 1(b). The apparatus disclosed in

Woodward, however, is internally threaded at its upper portion, i.e. cap (13), for insertion of a liquid delivery tube *into the apparatus*. In support of rejection, the Examiner identifies the chamfers on the corners of the cross section of the apparatus of Woodward in Figs. 3A and 3B. Nowhere in Woodward is there any description of the outside diameter of the upper portion of the bleed valve (7) or any indication that the outside diameter of the bleed valve (7) facilitates insertion into a liquid delivery tube. Applicant notes that drawings are for illustrative purposes only and are not accurate as to actual dimensions, but it appears that the chamfers shown in Figs. 3A and 3B of Woodward are much too slight to facilitate insertion into a liquid delivery tube and thereby fail to meet the limitations of claim element 1(b). Because Woodward does not disclose a tapering upper tubular portion that facilitates insertion into a liquid delivery tube, Woodward cannot anticipate claim 1 nor any of the claims dependent upon claim 1.

For the above reasons, it is believed that claims 1-3, 9-10, and 12 are patentable over Woodward.

ii. Claim 7

The Examiner rejected claim 7 based on Woodward's depiction that its upper tubular portion (22) tapers inwardly to restrict the flow of fluids. (Office Action, Ex. C, pg. 4, lines 11-14). Applicant disagrees that flow would be restricted by the upper portion (22) of Woodward. Looking at Figs. 2A, 3A, and 3B of Woodward, the inlet passage (17) of Woodward can be clearly seen as smaller than the outlet passage (21) of Woodward. Because the outlet passage (17) is larger than the inlet passage (21), flow cannot be further restricted by the upper portion (22) of Woodward. In contrast, Fig. 2 of the instant Application shows an upper tubular portion that tapers to reduce the

diameter of the outlet end to less than that of the inlet end and thus restrict the flow of fluids. For this reason, it is believed that claim 7 is patentable over Woodward.

iii. Claim 8

The Examiner rejected claim 8 based on Woodward's depiction that its upper tubular portion (22) is adjustable by trimming to increase the flow of fluid. (Office Action, Ex. C, pg. 4, lines 11-14). Applicant disagrees that flow could be increased by adjusting portion (22) of Woodward. Looking at Figs. 2A, 3A, and 3B of Woodward, the inlet passage (17) of Woodward can be clearly seen as smaller than the outlet passage (21) of Woodward). Because the outlet passage (17) is already larger than the inlet passage (21), flow cannot be increased by further widening the portion (22) through trimming.

Applicant further notes that trimming portion (22) of Woodward would effectively remove the chamfers identified by the Examiner. As shown in Fig. 3A and Fig. 3B of Woodward, the chamfers are at the upper edges of the bleed valve (7) of Woodward, above the portion (22). Trimming the portion (22) to increase its diameter would thus remove the chamfers, which the Examiner wrongly identifies as tapering that would allow insertion into a liquid delivery tube. The Examiner's rejection of claim 8 cannot stand because trimming the portion (22) would remove a claim element.

For the above reasons, it is believed that claim 8 is patentable over Woodward.

B. Rejection under 35 U.S.C. 103(a) over U.S. Patent No. 4,070,237 ("Woodward").

i. Claims 6, 11

The Examiner rejected claims 6, 11, and 14 as being unpatentable over Woodward (U.S. 4,070,237). Woodward discloses a ball valve with a valve seat having an included angle of approximately 50 degrees, i.e. 25 degrees per side. Claims 6 and

11 require the valve seat of the present invention to sidewalls that taper inwardly at an angle less than 20.76 degrees but greater than 14.76 degrees and generally less than 21 degrees but greater than generally 15 degrees. The Examiner contends that based on Woodward it would have been obvious to one having ordinary skill in the art at the time the present invention was made to have selected the angles in the claimed range (Office Action, Ex. C, at 6). The Examiner further states "such range overlaps or is *close enough* in range to the 25 degrees of Woodward, that selection would involve only routine skill in the art." (*Id.*)

Woodard is not in the same field of endeavor or analogous to the present invention. (See *In re Deminski*, 796 F.2d 436,442, 230 U.S.P.Q. 313, 315 (Fed. Cir. 1986). Woodward relates to the field of automatic bleed valves for controlling the vacuum of suction boxes (Woodward, col. 1, lines 6-10), Woodward further teaches that two-inch diameter ball is preferred, (Woodward, Col. 5, lines 10-23), but a ball of such diameter would be impracticable for use with a drinking apparatus. In particular, Woodward makes no suggestion of the problems faced by the Applicant, easing the effort of drinking through a liquid delivery tube, (Application, pg. 1, lines 6-7), *and* supporting a column of fluid at all times. (Application, pg. 7, lines 2-3). Woodard is therefore not reasonably pertinent to the specific problem of concern in the present invention. (See *In re Clay*, 966 F.2d 656, 23 U.S.P.Q.2d 1058, 1060-61 (Fed. Cir. 1992)).

Woodward's teaching of a valve seat with a taper of 25 degrees is not "close enough" to the range of the taper angles claimed in the instant application. In fact, there is no teaching or motivation provided in Woodward (or any other prior art provided by

the Examiner) to use a valve seat taper angle of less than 25° with ball valves for use with drinking apparatuses. Woodward explicitly teaches that "in any case" the valve seat "will be cut approximately a 50° included angle." (Woodward, col. 4, lines 16-17). Because of the limit of the teaching of the valve seat angle to a 50 degree included angle "in any case", Woodward does not motivate subsequent inventors to try any other valve seat angles, much less the angles claimed in Applicant's claims 6, 11, and 14. (See *In re Lindell*, 385 F.2d 453, 155 U.S.P.Q. 521, 523 (C.C.P.A. 1967) (rejection the "obvious to try" test); See *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching requirement as a guard against using hindsight in an obviousness analysis)).

The 25° angle disclosed by Woodward is considerable larger than the generally less than 21 degree angle upper limit claimed by Applicant. This difference of approximately 4 degrees is not "close enough" as the Examiner contends. As attested to in the Schafer Declaration of Ex. D, valve seat angles even a few degrees higher than the claimed range provided an unsatisfactory seal, (Schafer Declaration, Ex. D, ¶5) but angles less than the claimed range resulted in the ball tending to stick in the valve seat (Schafer Declaration, Ex. D, ¶7). Woodward itself discloses that the relationship of the ball size and orifice size depend upon the vacuum units, (Woodward, Col. 5, lines 10-23), and limits it claimed valve seat angle to a 50 degree included angle. (Woodward, col. 4, lines 16-17). As stated in the Schafer Declaration, Ex. D, the angle closest to the angle of Woodward that was tested was 23.76 degrees, and this angle provided an unsatisfactory seal. (Schafer Declaration, Ex. D, ¶5) For purposes of valve seats for use with drinking apparatuses, Woodward therefore teaches away from using

valve seat angles of less than 25° or even angles close to 25 degrees, such as 23.76 degrees.

It should be noted that Woodward is not directed toward providing a valve seat with a satisfactory seal that would be required for the ball valves used with drinking apparatuses. Woodward only directs "taper of the conical valve seat 16 will be sufficient to prevent jamming of the ball in the seat". (Woodward, col. 4, lines 14-16). Woodward explains that the ball (18) of Woodward "in effect floats on a column of air", (*Id.*, col. 4, lines 3-4). It is therefore apparent from the disclosure of Woodward that the only concern with the valve seat is prevention of "jamming" of the ball and that providing a satisfactory seal is of no concern. The inventor's Declaration of Ex. D. shows that as valve seat angles decrease, the valves have a better seal but the tendency of the ball to stick in the valve increases. (Schafer Declaration, Ex. D, ¶¶ 5,7). Woodward thus teaches away from the use of lower valve seat angles, as these decreased angles increase the likelihood of "jamming" of the ball in contravention of the purposes of Woodward.

For the above reasons, it is believed that claims 6 and 11 are patentable over Woodward.

ii. Claim 14

Claim 14 further limits the angle to generally less than 18 degrees and generally greater than 17 degrees. For the reasons stated in the above explanation of why Woodward does not make obvious the range of angles of claims 6, and 11, Applicant asserts that further limited range of angles claimed in claim 14 is not obvious in light of Woodward. An angle of 18 degrees is considerable less than 25 degrees for valve seat

sidewalls. As noted in the Schafer Declaration, Ex. D, the inventors experimented with angles including 17.76 degrees, 20.76, and 23.76 degrees. (Schafer Declaration, Ex. D, ¶4). The angle of 23.76 degrees had an unsatisfactory seal (Schafer Declaration, Ex. D, ¶5). The angle of 17.76 degrees was chosen over the greater angles because it provided the best seal of the higher range of angles. (Schafer Declaration, Ex. D, ¶8). The experiments of the inventors, as declared by inventor Christopher E. Schafer, show that a difference of just a few degrees in the angle of the sidewalls greatly affects whether the valve seat provides a satisfactory seal.

For the above reasons it is believed that claim 14 is patentable over Woodward.

C. Rejection of Claim 13 under 35 U.S.C. 103(a) over U.S. Patent No. 4,070,237 ("Woodward") in View of U.S. Patent No. 3,773,256 ("Wright").

The Examiner rejected claim 13 as being unpatentable over Woodward (U.S. 4,070,237) in view of Wright (U.S. 3,773,256). Wright discloses an apparatus to teach a child to use a drinking tube. (Wright, col. 1, lines 14-17). The feeding tube (14) of Wright includes a ball valve (30) having fingers (34) defining a cage for a ball (32). (Wright, col. 1, lines 56-58). The valve (30) of Wright is illustrated in Fig. 2 of Wright. The Examiner states that it would have been obvious to attach the apparatus of Wright onto the valve of Woodward. (Office Action, Ex. C, pg. 7, lines 9-13).

In making this rejection of Applicant's claim 13, the Examiner has failed to make a prima facie case of obviousness. The Examiner states no motivation to combine Woodward and Wright other than to note the combination of Woodward and Wright could "provide a means to assist a child in drinking from a straw". See *In re Kahn*, 441 F.3d at 986, 78 USPQ2d at 1335 (requiring motivation to combine references). Wright,

however, already states that it assists a child in drinking from a straw. (Wright, Col. 1, lines 14-17). Wright therefore provides no further motivation to use a different valve. Woodward is directed toward use with bleed valves, and it therefore cannot provide motivation for its combination with a drinking apparatus.

The combination of Wright and Woodward is further not obvious. Woodward and Wright were both registered in the 1970s, and in over twenty years, no one has combined these apparatuses. For the above reasons it is believed that claim 13 is patentable over Woodward in view of Wright.

D. Conclusion

The Examiner has rejected the instant application based primarily on the disclosure of Woodward. As explained in this Argument section, Woodward fails to disclose each and every element of claims 1, 7, and 8, and does not make obvious the valve seat angles of claims 6, 11, and 14. Applicant has subsequently traversed the Examiner's rejection. Applicant suggests that the application is in condition for allowance and respectfully requests that this Board direct the Examiner to issue a timely Notice of Allowance.

Respectfully submitted,

By 

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CLAIMS APPENDIX

1. An apparatus for retaining fluid in a liquid delivery tube comprising
 - a. A lower portion having a ball valve that permits only unidirectional flow of fluids and includes a valve chamber for housing a ball and having an inlet end and an outlet end being spaced apart sufficiently so that said ball is longitudinally, reciprocally movable within said chamber from a closed position at the inlet end of said chamber to an open position at the outlet end of said chamber;
 - b. An upper tubular portion that has an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube, said tubular portion having an elongated, tapered passageway that communicates with said outlet end of the valve chamber to convey fluid from said chamber to said tube; and
 - c. said valve chamber inlet end includes a valve seat having sidewalls that taper inwardly from said valve chamber such that the diameter of said valve seat is reduced toward the valve chamber inlet end to prevent said ball from becoming stuck therein.
2. A fluid retaining apparatus as recited in claim 1, wherein at least one interior rib extends inward from an inside upper portion of the outlet of the valve chamber so that said ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber.
3. A fluid retaining apparatus as recited in claim 2, wherein the inside upper portion of the valve chamber includes a plurality of said interior ribs that are

circumferentially spaced apart.

4. A fluid retaining apparatus as recited in claim 3, wherein said plurality of said interior ribs are longitudinally aligned.

6. A fluid retaining apparatus as recited in claim [[5]] 1, wherein said valve seat sidewalls taper inwardly at an angle less than 20.76° but greater than 14.76° .

7. A fluid retaining apparatus as recited in claim 1, wherein the diameter of the passageway of the upper tubular portion tapers inwardly so that the flow of fluid through the upper tubular portion is restricted.

8. A fluid retaining apparatus as recited in claim 7, wherein the diameter of the passageway of the upper tubular portion is adjustable by trimming to increase the flow of fluid through the apparatus.

9. A fluid retaining apparatus as recited in claim 1, wherein the upper tubular portion can be inserted into the bottom of said liquid delivery tube.

10. An apparatus for retaining fluid in a liquid delivery tube comprising

- a. A lower portion having a ball valve that permits only unidirectional flow of fluids and includes a valve chamber for housing a ball and having an inlet end and an outlet end being spaced apart sufficiently so that said ball is longitudinally, reciprocally movable within said chamber from a closed position at the inlet end of said chamber to an open position at the outlet end of said chamber;
- b. An upper tubular portion that has an outside diameter that is tapered so that it can be inserted into a liquid delivery tube, said tubular portion having an elongated, tapered passageway that communicates with said

outlet end of the valve chamber to convey fluid from said chamber to said tube; and

- c. Said valve chamber inlet end having a valve seat with sidewalls that taper inwardly from said valve chamber such that the diameter of said valve seat is reduced toward the valve chamber inlet end to prevent said ball from becoming stuck therein and there is sufficient spacing between said inlet end and said outlet end of said valve chamber so that a portion of the liquid in said delivery tube is permitted to pass back through said apparatus to reduce the amount of liquid in said tube.

11. An apparatus for retaining fluid in a liquid delivery tube comprising

- a. A lower portion having a ball valve that permits only unidirectional flow of fluids and includes a valve chamber for housing a ball and having an inlet end and an outlet end being spaced apart sufficiently so that said ball is longitudinally, reciprocally movable within said chamber from a closed position at the inlet end of said chamber to an open position at the outlet end of said chamber;
- b. An upper tubular portion that has an outside diameter that is tapered so that it can be inserted into a liquid delivery tube, said tubular portion having an elongated, tapered passageway that communicates with said outlet end of the valve chamber to convey fluid from said chamber to said tube; and
- c. Said valve chamber inlet end includes a valve seat having sidewalls that taper inwardly from said valve chamber at an angle less than generally 21

degrees but greater than generally 15 degrees to prevent said ball from becoming stuck therein.

12. A fluid retaining apparatus as recited in claim 1, wherein the spacing between said inlet end and said outlet end of said valve chamber is of a sufficient length so that as said ball moves from said open position to said closed position, a portion of the liquid in said delivery tube is permitted to pass back through said apparatus to reduce the amount of liquid in said tube.

13. A fluid retaining apparatus as recited in claim 12, wherein said liquid delivery tube is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which said apparatus is attached.

14. A fluid retaining apparatus as recited in claim 6, wherein said valve seat sidewalls taper inwardly at an angle generally greater than 17 degrees but generally less than 18 degrees.

EVIDENCE APPENDIX

Ex. A, Assignment Record

Ex. B, Iowa Secretary of State Business Record

Ex. C, Office Action, August 9, 2006

Ex. D, Rule 132 Declaration of Christopher E. Schaffer

RELATED PROCEEDINGS APPENDIX

None.

In re Application of:

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Assignments on the Web > Patent Query

Patent Assignment Details

NOTE: Results display only for issued patents and published applications. For pending or abandoned applications please consult USPTO staff.

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1 Patent #: NONE Issue Dt: Application #: 10697376 Filing Dt: 10/30/2003
Publication #: US20050092373 Pub Dt: 05/05/2005
Title: Fluid retaining apparatus with ball valve

Assignors

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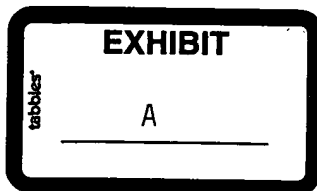
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Legal Name	Chapter	Corp No.
IMPROVED MOBILITY, INC.	CODE 490 DOMESTIC PROFIT	233703
Expiration Date	Type	Modified No.
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Effective Date	State of Inc.	
Nov 08, 1999	IA	
Filing Date	Status	
Nov 08, 1999	Active	

Names (viewing 3 of 5)

Type	Status	Modified	Name
Fictitious name	Active	No	EVERGREEN HEALTH, INC.
Fictitious name	Active	No	EVERGREEN HEALTH INC.
Legal	Active	No	IMPROVED MOBILITY, INC.

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EXHIBIT

B

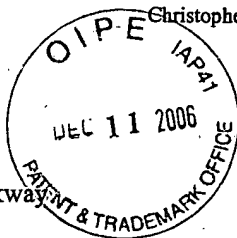


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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,376	10/30/2003	Christopher E. Schafer	993819-8	7890

7590 08/09/2006
G. Brian Pingel
Brown, Winick, et al
Suite 277
Regency West 5, 4500 Westown Parkway
West Des Moines, IA 50266



EXAMINER

PRICE, CRAIG JAMES

ART UNIT PAPER NUMBER

3753

DATE MAILED: 08/09/2006

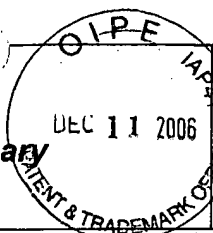
D/C

Please find below and/or attached an Office communication concerning this application or proceeding.

EXHIBIT

C

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Office Action Summary

Application No.

10/697,376

Applicant(s)

SCHAFFER ET AL.

Examiner

Craig Price

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

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- 4) ☒ Claim(s) 1-4 and 6-14 is/are pending in the application.
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- 5) ☐ Claim(s) _____ is/are allowed.
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Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
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1. The declaration under 37 CFR 1.132 filed 26 May 2006 is insufficient to overcome the obviousness rejection based upon the statutory grounds below indicating that the rejections have not been overcome as set forth in the last Office action because:

Regarding the "tendency to stick", this is a statement, which amounts to an affirmation of how the claimed subject matter was intended to function. This is not relevant to the issue of nonobviousness of the claimed subject matter and provides no objective evidence thereof. See MPEP § 716.

Regarding the angle selection, declarant provides no objective evidence in support of alleged desirability of the recited angle range.

Therefore, having considered the factual inquiries specified in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), and the factual allegations in the applicant's declaration in accordance with the provision of 37 CFR 1.132, the rejections are deemed proper for the reasons set forth below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3753

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodward (US 4,070,237).

Regarding claims 1 and 10, Woodward discloses an apparatus, shown in figure 3A, for retaining fluid (the fluid in this case is air, and also in some cases "a clean spray of water" Col. 5, Lns 28-33) in a liquid delivery tube comprising of, a lower portion (15) having a ball valve (18) that permits only unidirectional flow of fluids and includes a valve chamber (surrounding 18) for housing a ball and having an inlet end (17) and an outlet end (21) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (13) that has an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube (external chamfer close to reference number 13, is tapered in a manner which can facilitate insertion), the tubular portion having an elongated, tapered passageway (22) that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube and the valve chamber inlet end includes a valve seat having sidewalls that taper inwardly from the valve chamber such that the diameter of the valve seat is reduced toward the valve chamber inlet end to prevent the ball from becoming stuck therein (Col. 4, Lns. 14-17 and Col. 5, Lns. 3-10, the experiment performed indicates that valve was found to bleed a consistent amount of air, which indicates that no sticking occurred during the experiment).

Regarding claim 2, Woodward shows in Figure 3A, at least one interior rib (24) extends inward from an inside upper portion of the outlet of the valve chamber so that the ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber (Col. 4, Lns. 37-41).

Regarding claim 3, Woodward shows in Figure 3A, the inside upper portion of the valve chamber includes a plurality of the interior ribs (11) that are circumferentially spaced apart.

Regarding claim 7, Woodward shows the diameter of the passageway of the upper tubular portion tapers inwardly (22) so that the flow of fluid through the upper tubular portion is restricted as seen in Figure 3A.

Regarding claim 8, Woodward depicts that the diameter (along 22) of the upper passageway of the upper tubular portion is adjustable by trimming to increase the flow of fluid through the apparatus (the upper portion of 22 above stop 24 could be cut to increase the area for increased flow through the passageway).

Regarding claim 9, Woodward's upper tubular portion can be inserted into the bottom of the liquid delivery tube, (the upper portion is configured to be inserted into the inner diameter of a straw, where the exterior of the straw would go over the upper tubular tapered portion, the limitation is not positively recited).

Regarding claim 12, Woodward discloses the spacing between the inlet end and the outlet end of the valve chamber is of a sufficient length so that as the ball moves from the open position to the closed position, a portion of the liquid in the delivery tube

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is permitted to pass back through the apparatus to reduce the amount of liquid in the tube (Col. 2, Lns. 52-69).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237) in view of Tatum (US 342,478).

Woodward has taught all of the limitations of the claimed invention except that the valve has "the plurality of the interior ribs are longitudinally aligned".

Tatum discloses a ball valve, which teaches the plurality of the interior ribs (a) are longitudinally aligned, as shown in figure 1.

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In view of the Tatum patent, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the plurality of the interior ribs are longitudinally aligned in replace of the stop of Woodward in order to provide for a more stable valve seat.

5. Claims 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237).

Woodward has taught all of the features of the claimed invention except that, the valve seat sidewalls tapering inwardly at an angle less than 20.76 but greater than 14.76 degrees, or sidewalls that taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees, or at an angle greater than 17 degrees but generally less than 18 degrees.

Woodward teaches the use of a ball check valve used with a fluid, having a "50 degree inclusive angle, i.e. 25 degrees per side, for the tapered seat 16, (Col. 5, Lns. 3-6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the range at an angle less than 20.76 but greater than 14.76 degrees, or sidewalls that taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees, or at an angle greater than 17 degrees but generally less than 18 degrees, since such range overlaps or is close enough in range to the 25 degrees of Woodward, that selection would involve only routine skill in the art (see MPEP 2144.05).

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6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237) in view of Wright (US 3,773,256).

Woodward has taught all of the features of the present invention except that the liquid delivery tube is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached.

Wright discloses a drinking device having a liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached as shown in figure 1.

In view of the Wright patent, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached of Wright onto the valve of Woodward, in order to provide a means to assist a child in drinking from a straw (Col. 1, Lns. 14-17).

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Price whose telephone number is (571) 272-2712. The examiner can normally be reached on 7AM - 5:30PM M-R.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

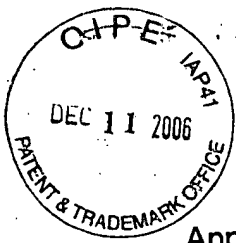
CP

A handwritten signature in black ink, appearing to be 'CP' with a stylized flourish.

7 August 2006

A handwritten signature in black ink, reading 'Eric Keasel'.

**ERIC KEASEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700**



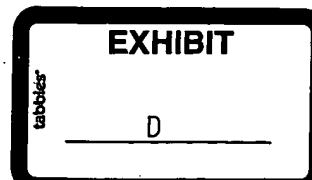
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: CHRISTOPHER E. SCHAFER)
Serial No: 10/697,376) Art Unit: 3753
Filing Date: October 30, 2003) Examiner: Craig James Price
Title: IMPROVED FLUID RETAINING) Mailing Date: March 23, 2006
APPARATUS WITH BALL VALVE)

Declaration under 27 C.F.R. § 1.132

I, Christopher E. Schafer, of 1637 280th Street, Adair, Iowa 50002, a citizen of the United States of America hereby declare:

1. That I am an inventor of the invention that is the subject of the above application for patent.
2. In early 2003, Rodney Ramsey and I experimented with the taper angles of ball valve seats to ascertain the optimal valve seat taper angle.
3. We modified our injection molding tooling of the ball valve to experiment with four (4) different degrees of taper angles of the valve seat area of the ball valve.
4. The degrees of taper tested were 14.76 degrees, 17.76 degrees, 20.76 degrees, and 23.76 degrees.
5. We discovered that the smaller taper angles produced the better tendency for the ball to seal in the valve seat and of the taper angles tested, the taper angle of 14.76 degrees had the best seal and the taper angle of 23.76 degrees had an unsatisfactory seal.
6. We understood that because a typical user of this product tends to be extremely frail, even a minimal amount of sticking of the ball to the valve seat would cause a user to be unable to obtain fluid through an attached liquid delivery tube.
7. Although valves of a 14.76 degree taper angle did the best job of preventing leak-back of fluid, the ball had a greater tendency to stick in the valve seat at this angle.
8. For the final design of the preferred embodiment of the present invention, we selected the taper angle of 17.76 degrees to obtain a satisfactory seal and prevent the ball from sticking in the valve seat.



9. We had previously determined that a design having a radius on the seat area produced inconsistent and unsatisfactory results.
10. The undersigned declarant hereby declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 23, 2006
Date

Christopher E. Schafer
Christopher E. Schafer

May 23, 2006

Applicant: Christopher E. Schafer

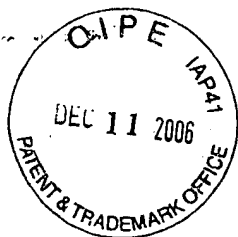
Appln. No.: 10/697,376

Filed: Oct. 20, 2003

Title: Improved Fluid Retaining Apparatus With Ball
Valve

Please acknowledge receipt of the following:

- Amendment
- Claim Amendments
- Certificate of Mailing
- Declaration under 27 C.F.R. Sec. 1.132



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Christopher E. Schafer

Appl. No.: 10/697,376

Filed: October 30, 2003

Invention: Improved Fluid Retaining
Apparatus with Ball Valve

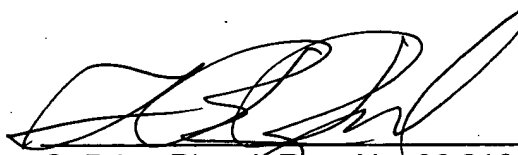
Grp./A.U.: 3753

Examiner: Craig James Price

Appeal No:

CERTIFICATE OF MAILING

I hereby certify that this Brief of Appellant is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on December 7, 2006, with adequate postage affixed thereto.


G. Brian Pingel, Reg. No. 26,216



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Reel/Frame: 014659/0293

Pages: 3

Recorded: 10/30/2003

Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Total properties: 1

1 Patent #: NONE Issue Dt: Application #: 10697376 Filing Dt: 10/30/2003
Publication #: US20050092373 Pub Dt: 05/05/2005
Title: Fluid retaining apparatus with ball valve

Assignors

1 SCHAFER, CHRISTOPHER E.
2 RAMSEY, RODNEY M.

Exec Dt: 10/28/2003

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Assignee

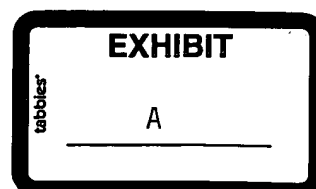
1 IMPROVED MOBILITY, INC.
401 AUDUBON
ADAIR, IOWA 50002

Correspondence name and address

PINGEL & TEMPLER, P.C.
G. BRIAN PINGEL
3737 WOODLAND AVE., STE. 437
WEST DES MOINES, IA 50266

Search Results as of: 12/05/2006 10:06 AM

If you have any comments or questions concerning the data displayed, contact PRD / Assignments at 571-272-3350.
Web interface last modified: July 26, 2006 v.1.10

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Legal Name	Chapter	Corp No.
IMPROVED MOBILITY, INC.	CODE 490 DOMESTIC PROFIT	233703
Expiration Date	Type	Modified
PERPETUAL	Legal	No
Effective Date	State of Inc.	
Nov 08, 1999	IA	
Filing Date	Status	
Nov 08, 1999	Active	

Names (viewing 3 of 5)

Type	Status	Modified	Name
Fictitious name	Active	No	EVERGREEN HEALTH, INC.
Fictitious name	Active	No	EVERGREEN HEALTH INC.
Legal	Active	No	IMPROVED MOBILITY, INC.

Registered Agent or Reserving Party

Full Name	CHRISTOPHER E SCHAFER
Address	401 AUDUBON ST
City, ST, Zip	ADAIR, IA, 50002

Home Office

Full Name	
Address	1637 280TH STREET
City, ST, Zip	ADAIR, IA, 50002

EXHIBIT

B



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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodward (US 4,070,237).

Regarding claims 1 and 10, Woodward discloses an apparatus, shown in figure 3A, for retaining fluid (the fluid in this case is air, and also in some cases “a clean spray of water” Col. 5, Lns 28-33) in a liquid delivery tube comprising of, a lower portion (15) having a ball valve (18) that permits only unidirectional flow of fluids and includes a valve chamber (surrounding 18) for housing a ball and having an inlet end (17) and an outlet end (21) being spaced apart sufficiently so that the ball is longitudinally, reciprocally movable within the chamber from a closed position at the inlet end of the chamber to an open position at the outlet end of the chamber, and an upper tubular portion (13) that has an outside diameter that is tapered to its terminus to facilitate insertion into a liquid delivery tube (external chamfer close to reference number 13, is tapered in a manner which can facilitate insertion), the tubular portion having an elongated, tapered passageway (22) that communicates with the outlet end of the valve chamber to convey fluid from the chamber to the tube and the valve chamber inlet end includes a valve seat having sidewalls that taper inwardly from the valve chamber such that the diameter of the valve seat is reduced toward the valve chamber inlet end to prevent the ball from becoming stuck therein (Col. 4, Lns. 14-17 and Col. 5, Lns. 3-10, the experiment performed indicates that valve was found to bleed a consistent amount of air, which indicates that no sticking occurred during the experiment).

Regarding claim 2, Woodward shows in Figure 3A, at least one interior rib (24) extends inward from an inside upper portion of the outlet of the valve chamber so that the ball cannot significantly obstruct the flow of fluids through the outlet of the valve chamber (Col. 4, Lns. 37-41).

Regarding claim 3, Woodward shows in Figure 3A, the inside upper portion of the valve chamber includes a plurality of the interior ribs (11) that are circumferentially spaced apart.

Regarding claim 7, Woodward shows the diameter of the passageway of the upper tubular portion tapers inwardly (22) so that the flow of fluid through the upper tubular portion is restricted as seen in Figure 3A.

Regarding claim 8, Woodward depicts that the diameter (along 22) of the upper passageway of the upper tubular portion is adjustable by trimming to increase the flow of fluid through the apparatus (the upper portion of 22 above stop 24 could be cut to increase the area for increased flow through the passageway).

Regarding claim 9, Woodward's upper tubular portion can be inserted into the bottom of the liquid delivery tube, (the upper portion is configured to be inserted into the inner diameter of a straw, where the exterior of the straw would go over the upper tubular tapered portion, the limitation is not positively recited).

Regarding claim 12, Woodward discloses the spacing between the inlet end and the outlet end of the valve chamber is of a sufficient length so that as the ball moves from the open position to the closed position, a portion of the liquid in the delivery tube

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is permitted to pass back through the apparatus to reduce the amount of liquid in the tube (Col. 2, Lns. 52-69).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237) in view of Tatum (US 342,478).

Woodward has taught all of the limitations of the claimed invention except that the valve has "the plurality of the interior ribs are longitudinally aligned".

Tatum discloses a ball valve, which teaches the plurality of the interior ribs (a) are longitudinally aligned, as shown in figure 1.

In view of the Tatum patent, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the plurality of the interior ribs are longitudinally aligned in replace of the stop of Woodward in order to provide for a more stable valve seat.

5. Claims 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237).

Woodward has taught all of the features of the claimed invention except that, the valve seat sidewalls tapering inwardly at an angle less than 20.76 but greater than 14.76 degrees, or sidewalls that taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees, or at an angle greater than 17 degrees but generally less than 18 degrees.

Woodward teaches the use of a ball check valve used with a fluid, having a "50 degree inclusive angle, i.e. 25 degrees per side, for the tapered seat 16, (Col. 5, Lns. 3-6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the range at an angle less than 20.76 but greater than 14.76 degrees, or sidewalls that taper inwardly at an angle less than generally 21 degrees but greater than generally 15 degrees, or at an angle greater than 17 degrees but generally less than 18 degrees, since such range overlaps or is close enough in range to the 25 degrees of Woodward, that selection would involve only routine skill in the art (see MPEP 2144.05).

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6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward (US 4,070,237) in view of Wright (US 3,773,256).

Woodward has taught all of the features of the present invention except that the liquid delivery tube is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached.

Wright discloses a drinking device having a liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached as shown in figure 1.

In view of the Wright patent, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the liquid delivery tube that is in the form of a straw having an upper end for delivering fluid to the mouth of a user and a bottom end to which the apparatus is attached of Wright onto the valve of Woodward, in order to provide a means to assist a child in drinking from a straw (Col. 1, Lns. 14-17).

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Price whose telephone number is (571) 272-2712. The examiner can normally be reached on 7AM - 5:30PM M-R.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CP



7 August 2006



ERIC KEASEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	CHRISTOPHER E. SCHAFER)	
)	Art Unit: 3753
Serial No:	10/697,376)	
)	Examiner: Craig James Price
Filing Date:	October 30, 2003)	
)	Mailing Date: March 23, 2006
Title:	IMPROVED FLUID RETAINING APPARATUS WITH BALL VALVE)	

Declaration under 27 C.F.R. § 1.132

I, Christopher E. Schafer, of 1637 280th Street, Adair, Iowa 50002, a citizen of the United States of America hereby declare:

1. That I am an inventor of the invention that is the subject of the above application for patent.
2. In early 2003, Rodney Ramsey and I experimented with the taper angles of ball valve seats to ascertain the optimal valve seat taper angle.
3. We modified our injection molding tooling of the ball valve to experiment with four (4) different degrees of taper angles of the valve seat area of the ball valve.
4. The degrees of taper tested were 14.76 degrees, 17.76 degrees, 20.76 degrees, and 23.76 degrees.
5. We discovered that the smaller taper angles produced the better tendency for the ball to seal in the valve seat and of the taper angles tested, the taper angle of 14.76 degrees had the best seal and the taper angle of 23.76 degrees had an unsatisfactory seal.
6. We understood that because a typical user of this product tends to be extremely frail, even a minimal amount of sticking of the ball to the valve seat would cause a user to be unable to obtain fluid through an attached liquid delivery tube.
7. Although valves of a 14.76 degree taper angle did the best job of preventing leak-back of fluid, the ball had a greater tendency to stick in the valve seat at this angle.
8. For the final design of the preferred embodiment of the present invention, we selected the taper angle of 17.76 degrees to obtain a satisfactory seal and prevent the ball from sticking in the valve seat.

EXHIBIT

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9. We had previously determined that a design having a radius on the seat area produced inconsistent and unsatisfactory results.
10. The undersigned declarant hereby declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

May 23, 2006
Date

Christopher E. Schafer
Christopher E. Schafer

May 23, 2006

Applicant: Christopher E. Schafer

Appln. No.: 10/697,376

Filed: Oct. 20, 2003

Title: Improved Fluid Retaining Apparatus With Ball
Valve

Please acknowledge receipt of the following:

- Amendment
- Claim Amendments
- Certificate of Mailing
- Declaration under 27 C.F.R. Sec. 1.132